We claim:

1. A method for catalytically reducing nitrogen oxide compounds, comprising exposing a gas comprising nitrogen oxides, consisting of NO and NO_2, in the presence of NH_3 to a catalyst comprising an active component selected from CuO, Mn, and oxides of Mn on a hydrous metal oxide support.

2. The method of claim 1 wherein the catalyst further comprises a promoter component selected from WO_3 and MoO_3.

3. The method of claim 2 wherein the promoter concentration is less than approximately 5% by weight of the catalyst.

4. The method of claim 1 wherein the catalyst further includes silica.

5. The method of claim 4 wherein the silica concentration comprises an amount effective to thermally stabilize the catalyst for temperatures up to 1000°C.

6. The method of claim 1 wherein the nitrogen oxides have a concentration less than approximately 1000 parts per million.

7. The method of claim 1 where in the gas further comprises compounds selected from sulfur oxides, water vapor, oxygen, carbon dioxide, carbon monoxide and hydrogen.

8. The method of claim 1 wherein the presence of NH_3 occurs from the thermal decomposition of urea.

9. The method of claim 1 wherein the method for catalytically reducing nitrogen oxide compounds occurs at a temperature greater than approximately 100°C.

10. The method of claim 1 wherein the method for catalytically reducing nitrogen oxide compounds occurs at a temperature less than approximately 750°C.

11. The method of claim 1 wherein the activated metal hydrous metal oxide support is selected from a hydrous titanium oxide and a hydrous zirconium oxide.

12. The method of claim 1 wherein the catalytic reduction of the nitrogen oxides has a conversion efficiency to nitrogen of greater than 90 percent.

13. The method of claim 1 wherein the NH_3 concentration is approximately equal to the nitrogen oxides concentration.

14. The method of claim 1 wherein the oxides of Mn are selected from MnO, MnO_2, and $MnO_{1.5}$.

15. The method of claim 1 wherein the catalyst is applied to a ceramic substrate.

16. The method of claim 15 wherein the ceramic substrate is selected from a bead, a pellet, or a monolith.

17. The method of claim 16 wherein the monolith is a cordierite honeycomb monolith.